

Researchers identify genes that influence what you eat

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You've likely heard that "you are what you eat," but a new study suggests

what you eat also has something to do with who you are—genetically speaking.

Researchers have identified nearly 500 genes that appear to directly influence what someone eats. These insights could help improve personalized nutrition to boost health or prevent disease, they said.

"Some genes we identified are related to sensory pathways—including those for taste, smell and texture—and may also increase the reward response in the brain," said research team leader [Joanne Cole](#). She is an assistant professor in the biomedical informatics department at the University of Colorado School of Medicine.

"Because some of these genes may have clear paths toward influencing whether someone likes a food or not, they could potentially be used to create sensory genetic profiles for fine-tuning a person's dietary recommendations based on foods they like to eat," Cole added in a news release from the American Society for Nutrition.

For the study, the researchers used data from the UK Biobank, which has information from 500,000 people, to do a phenome-wide association study. That enabled them to identify genes more strongly associated with diet than with any health or lifestyle factor.

"The foods we choose to eat are largely influenced by environmental factors such as our culture, [socioeconomic status](#) and food accessibility," Cole said. "Because genetics plays a much smaller role in influencing [dietary intake](#) than all the environmental factors, we need to study hundreds of thousands of individuals to detect genetic influences amid the [environmental factors](#). The data necessary to do this hasn't been available until recently."

It can be challenging to identify diet-related genes. What people eat also

involves other factors, including income, [body weight](#) and high cholesterol, the study authors noted.

The researchers applied [computational methods](#) to tease out direct effects of genetic variants that affect diet apart from indirect effects, such as a person having diabetes for genetic reasons and thus eating less sugar because of the condition.

The UK Biobank's detailed genetic, health and socioeconomic data allowed the investigators to test individual genetic variants for associations with thousands of traits. They could then eliminate indirect gene variants more strongly associated with conditions such as diabetes.

The study authors found around 300 genes directly associated with eating specific foods. They also noted almost 200 [genes](#) linked to [dietary patterns](#) which group various foods together, such as overall fish intake or fruit consumption.

"The study showed that dietary patterns tend to have more indirect genetic effects, meaning they were correlated with a lot of other factors," said Cole. "This shows how important it is to not study dietary patterns in a vacuum, because the eating pattern's impact on [human health](#) may be completely mediated or confounded by other factors."

In the future, Cole would like to see if a genetically modified diet could aid weight loss. Could nutritionists use a person's genetics to adapt the flavor profile of a [weight-loss](#) plan to improve adherence?

Cole presented the findings Saturday at the annual meeting of the American Society for Nutrition, in Boston. Findings presented at medical meetings should be considered preliminary until published in a peer-reviewed journal.

More information: The U.S. Centers for Disease Control and Prevention has more on [healthy eating for a healthy weight](#).

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